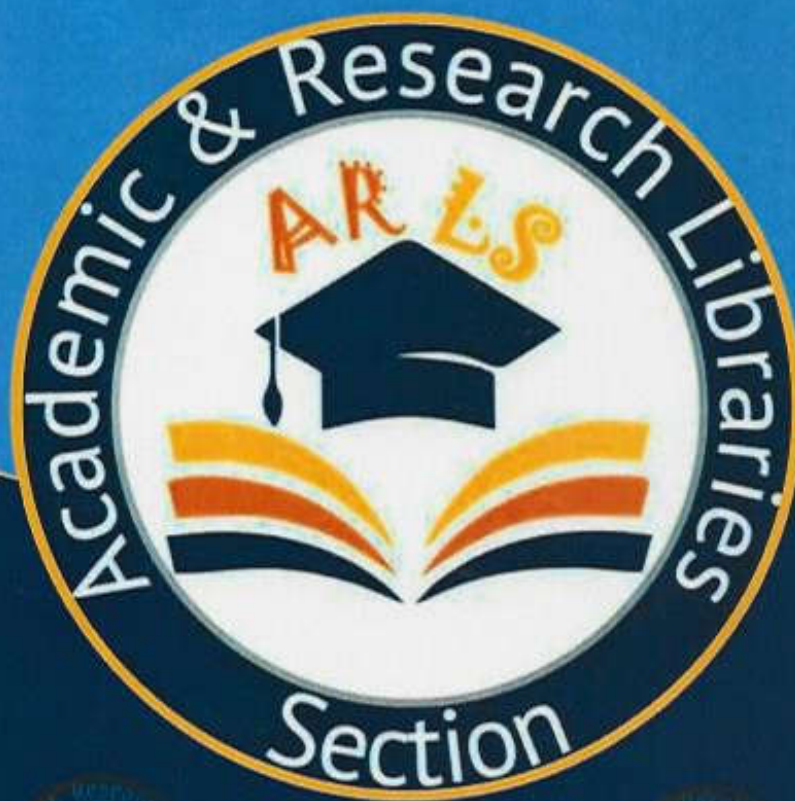


ACADEMIC AND RESEARCH LIBRARIES JOURNAL

Volume 1, Number 1 & 2, 2022



A Publication of Academic and Research Libraries Section of
Nigerian Library Association

**ACADEMIC AND RESEARCH LIBRARIES
(ARL) JOURNAL**

**A Publication of Academic and Research Libraries
Nigerian Library Association**

Volume 1, Number 1 & 2, 2022

NOTE TO CONTRIBUTORS

Editorial Policy

The Nigerian Journal of Academic and Research Libraries (ARL) is the official journal of Academic and Research Libraries Section of the Nigerian Library Association. The Journal is established to be a major channel for disseminating scholarly research by Librarians, information Managers, archivists, Information Scientists. Empirical, Opinion based, case study and position papers in the area that trends in library and information sciences.

Focus and Scope

The Nigerian Journal of Academic and Research Libraries publishes research papers in all fields of Library and Information Science. This journal has interest on original and empirical researches and it is not limited to the following areas of librarianship:

- ◆ Open Data in Academic Libraries
- ◆ 4th Industrial Revolution in Academic Libraries
- ◆ Collaborative Knowledge Creation
- ◆ Crowd Sourcing in Academic Libraries
- ◆ Collection Development in Academic Libraries
- ◆ Mobile Social Networking
- ◆ Data and Information Retrieval
- ◆ The Big Data and Academic Libraries
- ◆ E-learning and Social Networking in Academic Libraries
- ◆ Accreditation Practices and Academic Libraries
- ◆ OPAC
- ◆ Internet of Things in Libraries
- ◆ Virtual Library Services
- ◆ Blockchain in academic libraries
- ◆ Archival Management in Academic Libraries
- ◆ Information Literacy
- ◆ Reference Services

Plagiarism Policy

The Nigerian Journal ARL does not support the use of the author or other's intellectual property without acknowledging them. Notice is hereby given that any published paper discovered to have indulged in plagiarism issues will be retracted immediately.

Manuscript submission

Manuscript submitted to ARL should be original and not under consideration for publication nor have been published in other journal. It should be submitted in Word Format via the Online submission system of the journal.

Structure of the Manuscript

The submitted manuscript should have the following components:

- i. **Title:** the Title should not be more than 15 words, it should be clear and concise.
- ii. **Author(s) and their Affiliations:** Name(s) (Surnames in full Caps and last), Institutional affiliation and e-mails.
- iii. **Abstract:** The Abstract should be informative, states the purpose of the work, methods (Design, population and study setting, sample, data collection instruments, methods of analysis) results, discussion, implications, key conclusion and recommendations.
- iv. **Key words:** This should include 5 keywords arranged in alphabetical order.
- v. **Introduction:** should spell out the scope, context and what is expected from the work.
- vi. **Methods:** The procedure adopted in the research study should be stated clearly describing research design, population, sample techniques, data collection instruments, etc.
- vii. **Results and Discussion:** Give logical presentations, results should be interpreted, explained and evaluated accordingly.
- viii. **Conclusion:** The conclusion should state the important findings and contribution to the study.
- ix. **Recommendations:** These should be itemized from the key findings for practice and policy for further research.
- x. **References:** Researchers should adopt the 6th American Psychological Association (APA) style of referencing.

EDITORIAL BOARD MEMBERS

EDITOR-IN-CHIEF

Prof. Akobundu Ugah

Joseph Sarwuan Tarka University, Makurdi
Benue State

EDITORS

- | | | |
|-------------------------|---|---|
| Prof. R. E. Ozioko | - | Federal University of Agriculture, Umudike,
Abia State |
| Dr. Jummai Celina Nongo | - | Benue State University, Makurdi |
| Dr. Brendan E. Asogwa | - | University of Nigeria, Nsukka |
| Dr. Rose Ladi Momoh | - | University of Abuja |
| Dr. Adetoun Oyelude | - | University of Ibadan |
| Dr. Ibrahim Furfuri | - | Sokoto State University, Sokoto |
| Dr. R. O. Attama | - | Akanu Ibiam Federal Polytechnic, Unwana |
| Rev. Dr. G. O. Oyewole | - | Federal College of Education, Abeokuta |

TABLE OF CONTENTS

Notes to contributors

Table of contents

Editorial comments

- Best practices used for digital library holdings: Microsoft excel application for uploading collection development resources
Celina Jummai Nongo, Ph.D, Perpetua O. Nwachukwu & Kate Idoko 1
- Access and use of electronic databases by undergraduate students of federal university libraries in North-East zone, Nigeria
Bala Ahmed & Sani Muhammad Gwarzo, Ph.D 13
- Digital information resources its adoption as correlate of students' academic activities in federal university libraries, Nigeria
Ibrahim Wada, Abubakar Bitagi Mohammed & Katamba Abubakar Saka 29
- Librarianship adoption of entrepreneurial skills in Nigeria: Transition from service creation to wealth creation in the post era
Benedicta Ogochukwu Ezeudu, Tochukwu Victor Nwankwo & Patricia C. Ike 44
- Improved reference services in university libraries amidst covid-19 pandemic in Nigeria: Implicit strategies
Maxwell Oghenemaga Ebobo, Adizetu Ali Ph.D & Tochukwu Victor Nwankwo 57
- Effect of wireless internet connectivity: Accessibility and use of library resources among undergraduate students in university libraries in Nigeria
Garba Shambo, Mohammed Hajara Jibril & Fati Abubakar 70
- E-learning in academic libraries: Implications for use of electronic resources in Federal College of Education Oyo state Nigeria
Imran, A. Abdulakeem & Agbeniga, K. A. 79

Covid-19 pandemic: A share experience of its devastating effects on the academic library services provision in Nigeria

Hajara Jibril

89

Big Data: Implications for Academic and Research Libraries

Azino O. Akpokurerie, Samuel O. Ogunniyi, Ph.D & Jesubukade

Emmanuel Ajakaye

98



DIGITAL INFORMATION RESOURCES ITS ADOPTION AS CORRELATE OF STUDENTS' ACADEMIC ACTIVITIES IN FEDERAL UNIVERSITY LIBRARIES, NIGERIA

Ibrahim Wada

Department of Library and Information Science
University of Maiduguri, Borno State,
ibrahimwada@unimaid.edu.ng

Abubakar Bitagi Mohammed

Department of Library and Information Technology
Federal University of Technology, Minna, Niger State.
a.bitagi@futminna.edu.ng

Katamba Abubakar Saka

Department of Library and Information Technology
Federal University of Technology, Minna, Niger State.
s.katamba@futminna.edu.ng

Abstract

This paper investigated the Digital Information Resources its adoption as correlates of Academic Activities of students in Federal universities in Nigeria. A descriptive survey research design was employed with a population of 1,695 in 12 selected Federal universities in Nigeria. The study was guided by two research questions and one hypothesis tested at 0.05 alpha level. A Structured questionnaire was the instrument used for data collection. Descriptive statistics of frequency count, percentage (%), mean score and standard deviation as well as inferential statistics of Chi-Square Test of Independence were used for the data analysis. The findings of the study revealed that e-books, e-journals, e-conference proceedings, e-magazines, e-greys, e-newspapers, e-theses/dissertations and multimedia resources were adopted by the students for reading preparatory to tests or examinations as well as writing of seminar papers, workshop papers, conference papers, article publications, projects, thesis or dissertations and class assignments. Conclusively, students' adoption of digital information resources has positively but weakly correlated with their academic activities. It is recommended that academic libraries in Nigeria should provide free Internet service and information content push technology to bolster students' academic activities while students should adopt trustworthy and reliable digital information resources in academic libraries for better academic excellence.

Keywords: *Adoption, Digital Information Resources, Correlates, Academic activities.*

Introduction

Separating the concept of adoption from use when discussing the application or utilization of library resources for better academic excellence. The two concepts have always appeared as either synonymous or are interchangeable. Adoption is a process in taking action towards use and therefore precedes use itself. Adoption is a decision making activity or action or process, which is employed to predict an individual behaviour towards usage (Basri & Alandejani, 2018). Therefore, many researches are always geared towards identifying factors that determine or influence adoption, because it is believed that adoption is more of attitudinal behaviour, which is centred on feelings, motivation, attitudes, needs, and thoughts. For example, Venkatesh, (2012) professed that there are seven elements which influence adoption viz: performance expectancy, effort expectancy, social condition, and facilitating condition, hedonistic motivation, price value and habit with additional three moderating variables such as age, gender and experience. In the theory, facilitating condition and habit directly influencing use behaviour. In the light of the above explanation, the need to identify the relationship between adoption of digital information resources and students' academic activities in higher institution such as universities becomes eminent.

Universities are established with the core mandate of values, resources and objectives for teaching, learning, research and services to the host communities. Libraries established within the university community offer supports to attain those set objectives. One of such objective is to provide resources for the running of academic activities of both students and faculty members. Such academic activities are not limited to teaching, research, examinations, assignments, but include conference, workshop and article writing for presentation or publication (Ankamah, Akussah & Adams, 2018). Academic activities are outlined in the institutions' curriculum designed to engage students and teachers in learning, teaching and researches (Wong, et al., 2018; Basri & Alandejani, 2018). The successes of students' engagement in academic activities in universities are to support academic activities which, are reflected in successes they attain in tests, examinations, writing of quality conference papers, seminar papers, publishable article, projects / theses / dissertations, and attainment of knowledge (Ankamah, Akussah & Adams, 2018). Academic activities are also lined up in higher institutions to ensure that students are properly guided towards attaining academic excellence and certificate of honour after the successful completion of such programme.

Since the emergence of digital information resources in the hemisphere of education as pedagogical tools for learning, research and teaching and coupled

with the development of Internet, World Wide Web, Web-browsers and smartphones, researchers and library patrons including students in higher institutions seem to exercise preference towards digital information resources because of the characteristics of flexibility, simplicity and ease of use. There is also facts about remote access, transfer-ability, share-ability, and portability associated with digital information resources, also made academic libraries to acquire, subscribe and disseminate digital information resources in response to the dire need to compliment the shortages, obsoletes, wear and tear, theft, cost of purchase and maintenance linked to printed books and journals in recent times. Surprisingly, the behavioural outcome of academic libraries in acquisition and dissemination of digital information resources and students' behaviour towards accessibility, adoption and use of digital information resources seem to be falling apart on parallel directions. Could the reasons for students eschewing libraries' resources be lying with the behavioural intention or decision making strategy of the students? Could the knowledge about the students' behavioural intention (attitudes) towards digital information resources in relation to their academic activities provide headway in addressing students' truancy and phobia to libraries?

Statement of the Problem

Academic libraries subscribe to online databases to make digital information resources such as e-books, e-journals, e-magazines, e-conference proceedings, e-theses and e-dissertations available for library users to adopt and use. Academic libraries, in addition, provide user education to boost users' awareness about the resources and increase users' skills of access and use. As usual of students, they only adopt digital information resources they consider easy to access, believe that facilities for accessing the resources are readily available and resolve that the resources are valuable to their academic activities. Implicitly, most students seem to be staying away from academic stress and difficulty associated with searching, identifying, evaluating, and using information resources in the libraries.

Objectives of the study

The following were the objectives of this study

1. Identify types of academic activities that postgraduate engineering students engage in the twelve Federal Universities under study.
2. Identify the types of digital information resources that postgraduate engineering students adopt for academic activities in the universities under

study

Research Questions

1. What are the types of academic activities that postgraduate engineering students engage in at Federal universities under study?
2. What are the types of digital information resources that postgraduate engineering students adopt for academic activities in the universities under study?

Research Hypothesis

- I. There is no significant relationship between adoption of digital information resources and postgraduate engineering students' academic activities in the universities under study.

Literature Review

The engagement in academic activities by students can hardly be successful without use of trustworthy and reliable information resources (Ogbebor, 2011; Mohammed, Alhassan & Oyedum, 2018). Use of information resources is preceded by and regulated by the behavioural intention to use the resources (Venkatech, 2012). Such behavioural intention is determined by several psychological factors such as ease of use of the resources, benefits of using the resources, persuasion from colleagues or relatives towards the use of digital information resources (Venkatech, 2012; Uddin, Al Mamun, & Rahman, 2019). Nonetheless, in view of academic libraries' subscription to online databases and dissemination of digital information resources therefrom, students' academic activities is expected to be positively and strongly correlational to the adoption of digital information resources in terms of their academic successes.

Academic activities are laid down components of curriculum in higher institutions of learning that give students the academic privilege to partake in tests, examinations, and researches which usually lead to the presentation of seminar, conference, and workshop papers (Ali, Tariq and Topping, (2013); Osakwe, Keavey, Uzoka, Fedoruk and Osuji (2015); Kansas State University (2021) and Lawinsider (2021). Academic activities offer students the necessary and importance learning channels and protocols to interact proactively in various learning instructions such as digital information resources, create enabling opportunities for students to engage in researches as part of their contributions to discovery, innovation, and problem solving. Academic activities can easily be improved if students are able to regularly adopt digital information resources. This view is confirmed by Joseph, Izuagbe and Hamzat (2016) where they investigated the electronic information resources adoption in private university

libraries: the moderating effect of productivity and relative advantage on perceived usefulness. Their findings revealed that quality of job output improved, job performance increased, ease of carrying out task enhanced as manifestation of relative advantage of adopting digital information resources. Similarly, Pinigas, Cleopas, and Phiri (2018) investigated the acceptability of electronic information resources in Zimbabwe State universities' libraries by students where 233 respondents were involved. Their study revealed that, there was sufficient statistical evidence pointing out that social influence, price value and habit had a statistically significant and positive influence on behavioural intention to adopt electronic information resources.

Though the relationship between adoption and academic activities is usually considered to be moderated by actual use, the impacts of adoption on academic activities cannot be underestimated (Venkatesh, 2012). In pursuit of academic excellence, electronic theses and dissertations are good sources of refined knowledge because the results of the researches are carefully produced under the guidance of experience scholars (Gasaymeh, Al-Taweel, Al-Moghrabi & Al-Ghonmein, 2017; Kaba and Ellala, 2019). In other words, empirical literature are prerequisite for successful academic engagement. Based on this reason, postgraduate students are expected to make wider consultations of current and up-to-date e-journals and e-conference proceedings in search of supporting ideas, views, opinions, findings or contradictory opinions or findings. Ho (2015) appraised that higher institutions of learning usually offered research seminars which introduce graduate students to the process of developing the skills they need to read and evaluate the previous research studies. Multimedia resources as types of digital information resources are known to play significant roles in academic activities when learning to attain not only knowledge but also skills and experience that are requisite for academic excellence. Mahajan (2012) reported that multimedia technology use a variety of interactive means; make originally dull lectures into interactive two way information exchange.

Neo and Neo (2009) emphasized that multimedia technology is recognized as having the ability to empower educational process by means of increased interaction between teachers and the students. Tulinayo, Ssentume and Najjuma (2018) reported that students who used animated visuals scored significantly higher on mental rotation tests than those who used static visuals. Smaldino, Deborah, Lowther and Russell(2015) similarly suggested that visual learning could increase students understanding of abstract concepts because a student's perception of ideas can be enriched by visual example. Therefore, visuals can promote development of perceptual thinking.

Wang and Bai (2016) investigated the students' awareness, usage and

attitude towards e-books at the Zhejiang University in China. Their findings indicated that there was a significant difference of students' awareness and usage of general e-books and academic e-books. There was a higher awareness but lower adoption of general e-books. The awareness and level of usage of library provided e-books were both very low. A search engine was generally used to access e-books. Senior undergraduates and postgraduate students mainly accessed e-books from the library website and library catalogue. Students, particularly undergraduate students, used e-books mainly for the purpose of leisure. In contrast, postgraduate students tended to use e-books more for academic purposes.

Khan, Bhatti and Khan (2016) conducted a study on e-books usage by agricultural, engineering and social science students in selected universities of Pakistan. The results showed that the adoption of e-books has reached a level where they have become an integral component of academic library services. The results of this study verify the previous findings that the students are relying on e-book adoption for various academic and research purposes. Comparatively, male students, postgraduate students and those between the ages of 21 and 40 years are more frequently e-book users.

Narang and Suman (2016) carried out a study on the use of periodical literature by engineering students: a study of Baddi University of emerging sciences and technology. The outcomes of the study demonstrated that most of the students prefer to use online journals instead of printed journals; prolific publishers having engineering journal databases are substantially known to the respondents; students use journal literature to understand various key concepts of a particular discipline and also to improve writing skills.

Research Methodology

Descriptive Survey Research Design was used for the study. The population of the study consisted of 1,695 postgraduate engineering students registered for 2018/2019 academic session in 12 Federal Universities, 2 each from six geopolitical zones in Nigeria. The sample size was 314 which was determined with a proportionate sample of 26 from each university was determined for the administration of the research instrument. Questionnaire was employed as instrument for data collection. 306 questionnaire were returned representing 97% suitable for analysis. Descriptive statistics of frequency count, percentage, mean score and standard deviation were used for analysis of two research questions while inferential statistics of Chi-Square was used for testing one hypothesis at 0.05 alpha level of significance.

Findings

Table 1: Academic Activities Engaged In by postgraduate engineering students

SNO	Academic activities	N	Response (E=2, NE=1)		Decision		
			Freq. (%)	Freq. (%)	\bar{X}	Std.	\bar{X}_d
1.	Seminar paper writing	306	223(72.9)	83(27.1)	1.73	.444	A
2.	Workshop paper writing		80(26.1)	226(73.9)	1.28	.440	D
3.	Conference paper writing		244(79.7)	62(20.3)	1.80	.474	A
4.	Article for publication writing		235(76.8)	71(23.2)	1.77	.500	A
5.	Writing the Project/ Thesis/Dissertation		306(100.0)	306(100.0)	2.00	.000	A
6.	Writing Class assignments		306(100.0)	306(100.0)	2.00	.000	A
7.	Reading for tests and examination		306(100.0)	306(100.0)	2.00	.000	A
Weighted Mean					1.79		

Source: Fieldwork, 2020

Key: Engage (E), Not Engage (NE), N (306), Mean score (\bar{x}), Standard Deviation (Std.) Decision mean ($\bar{x}_d = 1.50$)

Table 1 presents the various academic activities that the respondents were engaged in for which they adopted and used digital information resources. The findings shows that the respondents were engaged in class assignment writing ($\bar{x} = 2.00$, Std. = .000), reading for tests and examinations ($\bar{x} = 2.00$, Std. = .000), Project/Thesis/Dissertation writing, ($\bar{x} = 2.00$, Std. = .000), conference paper writing ($\bar{x}=1.80$, Std. = .474), article paper writing ($x = 1.77$, Std. = .500), seminar paper writing ($\bar{x}=1.73$, Std. = .444), workshop paper writing ($x=1.28$, Std. = .440). The mean score for the findings is $\bar{x}= 1.26$, Std. = .440.

The finding shows that, very large number of respondents participated in seminar paper writing as part of their academic activities. The finding also revealed that a few number of respondents engaged in workshop paper writing. The result portrayed that significant number of respondents engaged in writing conference paper as academic activities. The finding equally revealed that the number of respondents that engaged in writing article paper as academic activity were large. However, the findings showed that every respondent engaged in academic activities such as report/thesis/dissertation, class assignment, and test/examination as part of academic requirement.

Table 2: Types of Digital Information Resources Adopted by postgraduate engineering students

Digital Information Resources, its Adoption as Correlate of Students' Academic Activities:
Ibrahim Wada, Abubakar Bitagi Mohammed & Katamba Abubakar Saka

SNO	Digital information resources adopted	N	Response (A=2, NA=1)		Decision		
			Freq. (%)	Freq. (%)	\bar{X}	Std.	\bar{X}_d
1.	e-books	306	236(77.1)	70(22.9)	1.77	.421	A
2.	e-journals		261(85.3)	45(14.7)	1.85	.355	A
3.	e-project/ e-thesis / e-dissertation		244(79.7)	62(20.3)	1.80	.403	A
4.	e-conference papers		242(79.1)	64(20.9)	1.79	.407	A
5.	Multimedia		222(72.5)	84(27.5)	1.73	.447	A
6.	e-Reference materials		209(68.3)	97(31.7)	1.68	.466	A
7.	e-seminar Papers		246(80.4)	60(19.6)	1.80	.398	A
8.	e- Zines		192(62.7)	114(37.3)	1.63	.484	A
9.	e-Newsletters		107(35.0)	199(65.0)	1.35	.478	D
10.	e-Grey document		168(54.9)	138(45.1)	1.55	.498	A
Weighted Mean					1.59		

Source: Fieldwork, 2020

Key: Agree (A), Disagree (D), N=306, Mean score (\bar{x}), Standard Deviation (Std.)
 Decision mean ($\bar{x}_d = 1.50$)

Table 2 shows the types of Digital information resources adopted by postgraduate engineering students. These include e-journals ($\bar{x} = 1.85$, Std. = .355), e-project/ e-thesis / e-dissertation ($\bar{x} = 1.80$, Std. = .403), e-seminar Papers ($\bar{x} = 1.80$, Std. = .398), e-conference proceedings ($\bar{x} = 1.79$, Std. = .407), e-books ($\bar{x} = 1.77$, Std. = .421), multimedia resources ($\bar{x} = 1.73$, Std. = .447), e-reference ($\bar{x} = 1.68$, Std. = .466), e-zines ($\bar{x} = 1.63$, Std. = .484), e-Grey document ($\bar{x} = 1.55$, Std. = .498) and e-Newsletters ($\bar{x} = 1.35$, Std. = .478). Statistically, the weighted Mean is greater than the decision mean ($\bar{x}_w = 1.59 > \bar{x}_d = 1.50$).

As can be observed in Table 2 the findings showed that significant number of respondents adopted e-books for academic activities. The finding revealed that large number of respondents adopted e-journals for academic activities. It is also found out that the respondents adopted e-projects/theses/dissertations for academic activities. The finding discovered that e-conference proceedings were adopted for academic activities. In addition, multimedia resources were also found to have been adopted by the respondents. The findings revealed that e-

reference materials, e-seminar papers, e-zines and e-grey were significantly adopted by the respondents for academic activities. But, the finding showed that few number of the respondents adopted e-newsletter for academic activities.

Table 3: Summary of Chi-Square Test for Independence: Adoption of Digital Information Resources* Academic Activities

	N	Value	Cramer's V	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	306	23.625 ^a	.278	1	.000
Continuity Correction ^b		18.303		1	.000
Likelihood Ratio		12.564		1	.000
Linear-by-Linear Association		23.548		1	.000

The summary of the Chi-Square Test for Independence in Table 3 shows that the probability value is less than the alpha level ($p < 0.05$), which signifies that there is statistical evidence to conclude that the hypothesis stating that there is no significant relationship between adoption of digital information resources and postgraduate engineering students' academic activities is hereby rejected, implying that a positive but weak relationship exists between the two categorical variables (Cramer's $V = .238$). In other words, students' adoption of digital information resources successfully bolsters their academic activities. These findings reveal that the more students are disposed or demonstrate positive attitude towards digital information resources, the more likely they would use the resources to enhance their various academic activities.

Summary of Major Findings

1. A Significant number of the postgraduate engineering students, as indicated in Table 1, Are engaged in academic activities such as class assignment writing, reading for tests and examinations, project/Thesis/Dissertation writing, conference paper writing, article paper writing as well as seminar paper writing. However, a few number of the respondents are engaged in academic activities like workshop paper writing.
2. A Significant number of the respondents as indicated in Table 2 adopted e-journals, e-project/e-thesis/e-dissertation, e-seminar papers, e-conference papers, e-books, multimedia resources, e-reference materials, e-zines and e-grey document for academic activities, with the exception of e-newsletters,

which were not adopted for academic activities.

Discussion of the Findings

The result of the analysis of the academic activities as shown in Table 1, revealed that postgraduate engineering students were engaged in the following; Seminar paper writing, workshop paper writing, conference paper writing article writing, writing the project/thesis/dissertation, writing class assignments, and reading for tests and examination. No wonder all the enumerated academic activities are the core mandate of postgraduate students. The finding is in line with the discoveries of Ogbemor, 2011; Mohammed, Alhassan & Oyedum, 2018) who variably reported that students' participation in academic activities are mandatory requirements on which the students are examined and rewarded with academic credits. The findings of the authors, as confirmed by this study, are a reflection of the activities outlined and specified in the curriculum of education in high institutions like universities Zohrabi, 2011; Kansas State University, 2021 and Lawinsider, (2021). Academic activities are mandatory for students, and as requirements, students are examined based on their level of engagement in such academic activities. For example, writing of seminar papers, conference papers, and workshop papers are used to allow university management to measure the degree of learning and level of excellence in mastery of specialization Osakwe, *et al.* (2015). The academic activities also allow students to express their understanding on the subject matter, present and discuss their findings, show their discoveries and innovations as well as demonstrate their skills and knowledge in the field they pursue. In addition, reading for tests and examinations are measures established as part of academic activities to examine the level of knowledge and skills acquired by students in the course of learning.

The findings on the types of digital information resources as displayed in Table 2 revealed that significant number of postgraduate engineering students adopted various digital information resources for academic activities. It is not surprising that postgraduate students always surf and evaluate different information resources before they include them in their researches. The revelation is in agreement with the findings of Venkatesh, (2012) in which he stated that adoption is a requisite aspect of user behaviour. It also corroborates the findings of Gasaymeh, Al-Taweel, Al-Moghrabi & Al-Ghonmein (2017); Kaba and Ellala (2019); Wong, 2018); Basri and Alandejani (2018); Ankamah, Akussah and Adams (2018); where they reported that university students' perceptions and adoption of the digital information resources or digital technologies are the determinant of subsequent use of the resources. The authors also added that the driving force behind students' use of digital information resources is the level of their adoption.

This revelation is not unlikely because, it is typical of individual student to evaluate the usefulness of information resources, the ease and flexibility or difficulty associated with the use of such information resources before they actually use them.

Conclusion

The data presented and the discussions of the findings have generally shown that postgraduate engineering students in higher institutions in Nigeria engage in various academic activities. It is also revealed that, to facilitate their learning and research endeavour, they adopt various digital information resources. However, the adoption of the types of digital information resources for academic activities is generally low. This is statistically manifested in the result of the hypothesis test where it is revealed that positive but weak relationship exist between adoption of digital information resources and postgraduate engineering students' academic activities.

Recommendations

1. Academic libraries should improve their priority for students' academic activities by deploying facilities such as uninterrupted free or low rate Internet service, Information-Contents-Push-Technology like RSS feeds, emails, social media, and YouTube for regular user education or digital literacy to inculcate positive attitudes in students towards information resources in libraries
2. Students should resist the trap in information-glut and adopt trustworthy and reliable information resources including digital information resources specifically acquired and disseminated by academic libraries to attain better academic excellence.

References

- Ajzen, I. (1985). *From intentions to actions: A theory of planned behaviour*. In Kuhl J. and Beckmann J. (eds.). *Action Control: From Cognition to Behaviour*. New York: Springer-Verlag, 3, 11-39.
- Andrew, M. et al (2018). Student attitudes towards technology and their preferences for learning tools/devices at two Universities in the UAE. *Journal of Information Technology Education: Research*, 17, 309-344.
- Ankamah, S., Akussah, H. & Adams, M. (2018). Postgraduate students' perception towards the Use of Information and Communication Technology (ICT) in

Digital Information Resources, its Adoption as Correlate of Students' Academic Activities:
Ibrahim Wada, Abubakar Bitagi Mohammed & Katamba Abubakar Saka

Research in Ghanaian Public Universities. *Library Philosophy and Practice (e-journal)*. 1737.

- Basri, W. S. & Alandejani, J. A. (2018). ICT Adoption Impact on Students' Academic Performance: Evidence from Saudi Universities. *Hindawi Education Research International*, 9 <https://doi.org/10.1155/2018/1240197>
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*. 13(3), 319-340.
- Davis, F.D. (1987). *Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*, in MIT Sloan School of Management, Cambridge: MA.
- Eiriemiokhale, K. R. (2015).** Adoption and use of electronic information resources by medical science students of the University of Benin, Benin City, Nigeria. *African Journals Online (AJOL)*. 12 (2), 20 - 29 <https://www.ajol.info/index.php/ict/cart/view/130104/119671>
- Fishbein, M., Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*, MA: Addison-Wesley.
- Fofodilea, F. I. & Ifijehb, G. I. (2013). Current trends in library patronage by faculties in Nigerian universities: A study of Ladoke Akintola University, Ogbomosho, Nigeria. *Annual Library and Information Studies*. 60, 27-35. <https://core.ac.uk/download/pdf/229207775.pdf>
- Ham, M. (2021). *Theories of Innovation Adoption and Real-World Case Analyses*. Press Books. Retrieved from: <https://ohiostate.pressbooks.pub/drivechange/chapter/chapter-1>
- Ho, P. V. P. (2015). The effectiveness of a thesis writing seminar for graduate students at Ho Chi Minh City Open University. *Journal of Science Ho Chi Minh City Open University* 1(6) doi.org/10.13140/RG.2.1.1788.3686.
- Isah, A. (2015). The adoption and Usage of Digital Library Resources by Academic Staff in Nigerian Universities: A case Study of University of Ilorin. *Bull. IEEE Tech. Comm. Digit. Libr.*, 11.
- Isah, A. (2014). The adoption and Usage of Digital Library Resources by Academic Staff in Nigerian Universities: A case Study of University of Ilorin. *Digital Libraries 2014 Doctoral Consortium September 8, 2014, London, UK*. Retrieved from: <https://bulletin./jcdl.org/Bulletin/v11n1/papers/isah.pdf>
- Joseph, E.I., Hamzat, S. A. & Izuagbe, R. (2016). Electronic Information Resources (EIR) Adoption in Private University Libraries: The Moderating Effect of Productivity and Relative Advantage on Perceived Usefulness. *Journal of Information Science Theory and Practice*. 4(1), 30-48, 2016.

- <http://dx.doi.org/10.1633/IISTaP.2016.4.1.3>
- Kaba, A. & Ellala, Z. K. (2019). "Digital information resources: use and perceptions of deaf and hearing students", *Digital Library Perspectives*, 35 (3&4), 227-243. <https://doi.org/10.1108/DLP-05-2019-0020>
- Kansas State University (2021). Definition of Academic Related Activity. <https://www.k-state.edu/registrar/students/academicpolicy/academic-activity.html>
- Khan, A., Bhatti, R., & Khan, A. (2016). E-books Usage by Agricultural, Engineering and Social Science Students in Selected Universities of Pakistan. *The Electronic Library*, 34 (6), 958 - 973. <http://dx.doi.org/10.1108/EL-08-2015-0163>
- Lawinsider.com. (2021). Academic Activities. <https://www.lawinsider.com/dictionary/academic-activity>
- Mahajan, G. (2012). Multimedia in teacher education: perceptions & uses. *Journal of Education and Practice (Online)*, 3(1), 3-13
- Mohammed, A.B., Alhassan, J. A., & Oyedum, G.U. (2018). Impact of Quality Information Resources on Students' Academic Performance in Tertiary Institutions in Niger State, Nigeria. *Library Philosophy and Practice (e-journal)*, 1978. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5334&context=libphilprac>
- Morris, L. S. (2017). Is Academic Library Attendance Important? *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve*. 26 (2), 59-61. DOI: <https://doi.org/10.1300/10723030802096638>
- Narang, S.J. & Suman, S. (2016). Use of Periodical Literature by Engineering Students: a Study of Baddi University of Emerging Sciences and Technology. *International Journal of Information Sources and Services*, 3, 88-99.
- Neo, M., & Neo, T. K. (2009). Engaging Students in Multimedia-Mediated Constructivist learning Students' Perceptions. *Educational Technology & Society*, 12 (2), 254-266
- Nse, J. S. & Okorafor, C. N. (2017) Comparative study of students' patronage at the academic libraries of two Nigerian universities: FUTO and EEU, *The International Information & Library Review*, 43 (2), 92-98. <https://doi.org/10.1016/j.iilr.2011.04.004>.
- Ogbebor, O. (2011). Library Resources and their Role in Education. Retrieved from: <https://osarome.blogspot.com/2011/12/library-resources-and-their-role-in.html>
- Olatundun, O., Yemisi, O. & Adegun, I. (2014). User perception and Library Patronage among Postgraduate Students: A case study of Ladoke Akintola

Digital Information Resources, its Adoption as Correlate of Students' Academic Activities:
Ibrahim Wada, Abubakar Bitagi Mohammed & Katamba Abubakar Saka

- University of Technology, Ogbomoso, Oyo State. *Impact: International Journal of Research in Humanities, Arts and Literature*. 2, 55-64.
- Omeluzor, S. U., Akibu, A. A., & Akinwoye, O. A. (2016). Students' perception, use and challenges of electronic information resources in Federal University of Petroleum Resources Effurun Library in Nigeria. *Library Philosophy and Practice (e-journal)*. 1428. <http://digitalcommons.unl.edu/libphilprac/1428>
- Osakwe, C. (2015). The relative importance of academic activities: autonomous values from the Canadian Professoriate. *Canadian Journal of Higher Education Revue canadienne d'enseignement supérieur*. 45(2), 1-22. <https://journals.sfu.ca/cjhe/index.php/cjhe/article/view/182560/0>
- Pinigas, M. & Ruzande, C. & Phiri, M.. (2017). Acceptance of e-resources by students in zimbabwe state universities' libraries: A Consumer Behaviour Perspective. *International Information & Library Review*. 50, 1-13. 10.1080/10572317.2017.1387443.
- Roasoft (November, 2020). Sample Size Calculator. <http://www.raosoft.com/samplesize.html>
- Rogers, E.M. (2003). *Diffusion of innovations*, 5th ed., New York: Free Press, p. 512.
- Smaldino, S. E. et al (2015). *Instructional Technology and Media for Learning*. New Jersey, Person.
- Tulinayo, F. P., Sentume, P. & Najjuma, R. (2018). Digital technologies in resource constrained higher institutions of learning: A Study on Students' Acceptance and usability. *International Journal of Educational Technology in Higher Education*, 15(1), <https://doi.org/10.1186/s41239-018-0117-y>
- Uddin, M. N., Al Mamun, M., & Rahman, M. S. (2019). Adoption and usage of web-based library resources and services: An investigation of icddr? library in Bangladesh. *Library Philosophy and Practice*, Vol. 2019, 2845. <http://www.scopus.com/inward/record.url?scp=85072850040&partnerID=8YFLogxK>
- Venkatesh, V. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly*. 27(3), 425-478.
- Venkatesh, V. & Thong, J. & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*. 36, 157-178. 10.2307/41410412.
- Wang, S. & Bai, X. (2016). University students' awareness, usage and attitude towards e-books: experience from China. *The Journal of Academic Librarianship*, 42(3), 247-258. <http://dx.doi.org/10.1016/j.acalib.2016.01.001>

Wong, L. P. (2017). Awareness, perception and barriers to seeking information from online academic databases and medical journals as sources of information. *Informatics for Health and Social Care*, 43(4),335-347. <https://doi.org/10.1080/17538157.2017.1364248>